

Claims 37-42, 88-93 and 95-98 are rejected under 35 USC 112, second paragraph. The basis of this rejection is that there is no antecedent for “the base” in part 6 of claim 88 and that there “is no antecedent for claim 97 less than 10% includes 0 (claim 37).”

Claim 88 has been amended to provide for a proper antecedent for “the base”. The remaining rejections are not understood.

Inherent in the rejections of this application under 35 USC 102 and 103 is the premise that the change from solubilized to partially solubilized polymer is merely a design choice of the person of ordinary skill in the art making the pesticidal matrix. It is this assumption that is misleading. All of the cited art disclosed products that have in their production somewhere a solubilization step. This makes perfect sense. How else would one achieve a reasonably homogeneous product? There certainly is no suggestion in the art to do anything other than completely solubilize the polymer. Applicants have gone a step further and made an effective formulation using partially solubilized polymer. It is not foreseeable that such a product would also have the expected activity when applied to control pests. The products obtained by this process are also different because they are formed from mixtures and not from solutions. The rejections under 35 USC 102 and 103 are addressed serially below, with reference to the above remarks.

Claims 88-93, 95 and 96 are rejected under 35 USC 102(b) as being anticipated by Bohm et al. The basis of the rejection is that the instant composition is disclosed by Bohm. This rejection is respectfully traversed.

Bohm discloses a microcapsule analogous to a gelatin ball having a hard coating which progressively becomes softer towards the center, wherein the insecticidal pathogen is located in a gelatinous material which is soft, viscous and composed of water, polymer and sunscreens agent. There is no water required by Applicant’s claims. The instant claimed matrix does not require all the limitations of the Bohm disclosure and accordingly, Bohm does not anticipate Applicants’ claims. Reconsideration is respectfully requested.

Claims 36-61, 63-78, 81-93, and 95-98 are rejected under 35 USC 103(a) as being unpatentable over Bohm et al. The basis of the rejection is that Bohm provides partially solubilized polymers, col. 5, lines 13-29. This rejection is respectfully traversed.

While Bohm may provide for partially solubilized polymers, the polymers are dissolved in organic solvent in the disclosed process. Bohm sets for at least three variation of a process to make

the microcapsule Bohm does not disclose or suggest making product in an aqueous mixture of partially solubilized polymer. Reconsideration is respectfully requested.

Claims 36-61, 63-78, 81-93 and 95-98 are anticipated by or in the alternative, under 35 USC 103(a) as obvious over Fakhruddin EP 0697170. This rejection is respectfully traversed.

Fakhruddin selects an amount of base to adjust the pH to about 8.5 to 10 to ensure ready solubilization of the polymer. Thus the polymer is no longer partially solubilized and the instant invention is not disclosed in Fakhruddin. The pH modifiers used to keep the preparation below pH 5 as disclosed on page 5, lines 38-44, relate to modifiers to keep the tank mix pH at an acceptable level. This relates to a time after the insecticidal matrix of the instant invention is made and does not relate to the process for making the matrix. Furthermore, Fakhruddin teaches away from the instant invention by teaching that it is necessary to have solubilization and so does not suggest the instant claimed invention. Reconsideration is respectfully requested.

Claims 36-44, 46-48, 52-54, 56, 60, 61, 63-70, 84, 87-89,, 92, 93, and 95-98 are rejected under 35USC 102(e) as being anticipated by Rheume et al for the reasons of record. This rejection is respectfully traversed.

Rheume discloses a process for preparing a biological insecticidal composition by adding polymer to a dispersion of pesticide at pH 8 and then adding acid to precipitate the polymer with the pesticide entrapped in the matrix. In the instant invention there is no need to add acid because the polymer does need to be precipitated. Rheume does not disclose the process of the instant invention. Reconsideration is respectfully requested.

Claims 36, 44-61, 63-67, 72-75. 81-93 and 95-98 are rejected under 35 USC 102 (b) as being anticipated by Bohm et al WO 89/04170 for the reason of record. This rejection is respectfully traversed.

The Examiner states that the neutralization step is spell out on page 7, line 30 to page 8, line 3. The examiner's attention is drawn to the fact that the aqueous solution cited on page 7, line 30 et seq is a solution of surfactant, not polymer. The polymer is part of step (i) starting at line 11 of page 7. The polymer is mixed with a solvent comprising at least on of polyethylene glycol, propylene glycol, a methylene chloride and propylene glycol mixture, tetrahydrofuran, tetrahydropyran, furan, and pyran. This differs from the aqueous mixture of the instant application. Reconsideration is respectfully requested.

Claims 36-61, 63-78, 81-93 and 95-98 are rejected under 35 USC 103(a) as being unpatentable over Miller or Bohm or Fakhruddin in view of Rheaume et al and Bohm et al. The rejection of record is maintained with Bohm WO showing the method of the instant invention adding base. This rejection is respectfully traversed.

AS discussed above not of the cited references teach or suggest preparing the matrix without a solubilization step. Accordingly, even considering the total teachings of the combined references, one of ordinary skill in the art would not arrive at the process of the instant invention. Reconsideration is respectfully requested.

The process of the instant invention requires the preparation of an aqueous mixture of the pesticidal agent and the partially solubilized polymer. Bohm teaches that the pesticidal agent and the polymer are dissolved in an organic solvent.

There is no teaching or suggestion in Bohm that the pesticidal agent and the polymer be mixed in water where there may not be complete solution. It is noted that the claims require the preparation of an aqueous mixture of polymer and pesticidal agent and the drying of that mixture. There is no opportunity to add organic solvent as suggested by the examiner. Reconsideration is respectfully requested.

Should the Examiner believe that a telephone call to the undersigned would resolve any outstanding issues to place the application in condition for allowance or narrow any issues for the purpose of appeal, he is respectfully invited to call at the telephone number indicated below.

Respectfully submitted,



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Marked up copy of amended claims 36-98.

36 _(Amended) A process comprising[:]

- (a) preparing an aqueous mixture containing a [pesticidal] pesticidal agent, a pH-dependent polymer, a base, optionally a plasticizer, optionally an ultraviolet protector, optionally an activity enhancer, optionally a glidant, and water;
- (b) wherein the polymer [-] (1) contains ester groups and free carboxylic acid groups, (2) is partially solubilized due to the action of the base, and (3) has a solubilization pH greater than about pH 5.5;
- (c) wherein the mixture's pH is less than the polymer's solubilization and pH; and
- (d) drying the mixture to produce a pesticidal matrix.

37 _(Amended) A process as described in Claim 36, wherein[:]

- (a)] in the mixture, after the base and polymer's acid groups have interacted, less than about 10% of the acid groups have been converted to salts.

38 _(Amended) A process as described in Claim 37, wherein[:]

- (a)] the polymer is essentially insoluble below about pH 5.5.

39 _(Amended) A process as described in Claim 38, wherein[:]

- (a)] the polymer is soluble above about pH 7.

40. (Amended) A process as described in Claim 39, wherein[:

- (a)] the base is present in an amount less than that required to fully solubilize the polymer.

41. (Amended) A process as described in Claim 40, wherein[:

- (a)] the base is a hydroxide compound.

42. (Amended) A process as described in Claim 41, wherein[:

- (a)] the compound is selected from the group consisting of ammonium hydroxide, an alkali metal hydroxide, an alkaline earth metal hydroxide, and mixtures thereof.

43. (Amended) A process as described in Claim 42, wherein[:

- (a)] the compound is ammonium hydroxide.

44. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture does not contain the plasticizer, the ultraviolet protector, the activity enhancer, and the glidant.

45. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the plasticizer.

46. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the ultraviolet protector.

47. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the activity enhancer.

48. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the glidant.

49_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the plasticizer and the ultraviolet protector.

50_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the plasticizer and the activity enhancer.

51_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the plasticizer and the glidant.

52_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the ultraviolet protector and the activity enhancer.

53_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the ultraviolet protector and the glidant.

54_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the activity enhancer and the glidant.

55_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the plasticizer, the ultraviolet protector, and the activity enhancer.

56_(Amended) A process as described in Claim 36, wherein[:

- (a) the mixture contains the ultraviolet protector, the activity enhancer, and the glidant.

57.__(Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the plasticizer, the activity enhancer, and the glidant.

58.__(Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the plasticizer, the ultraviolet protector, and the glidant.

59.__(Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture contains the plasticizer, the ultraviolet protector, the activity enhancer, and the glidant.

60.__(Amended) A process as described in Claim 36, wherein[:

- (a)]the pesticidal agent is selected from the group consisting of an insecticide, an acaricide, a [nematicide] nematicide, a fungicide, a herbicide, and mixtures thereof.

61.__(Amended) A process as described in Claim 60, wherein[:

- (a)] the pesticidal agent is an insecticide selected from the group consisting of a chemical insecticide, a [biological] biological insecticide, and mixtures thereof.

62.__(Amended) A process as described in Claim 61, wherein[:

- (a)] the insecticide is a chemical insecticide.

63.__(Amended) A process as described in Claim 61, wherein[:

- (a)] the insecticide is a biological insecticide.

64.__(Amended) A process as described in Claim 63, wherein[:

- (a)] the biological insecticide is a naturally-occurring or a genetically-modified variety of an insect biological control agent.

65. (Amended) A process as described in Claim 64, wherein[:

- (a)] the insect biological control agent is selected from the group consisting of a viral pathogen, a bacterial pathogen, a fungal pathogen, and mixtures thereof.

66. (Amended) A process as described in Claim 65, wherein[:

- (a)] the insect biological control agent is a viral pathogen selected from the group consisting of a DNA virus, a RNA virus, an unclassified insect virus, and mixtures thereof.

67. (Amended) A process as described in Claim 66, wherein[:

- (a)] the viral pathogen in a DNA virus selected from the group consisting of a double stranded enveloped DNA virus, a double stranded nonenveloped DNA virus, a single stranded DNA virus, and mixtures thereof.

68. (Amended) A process as described in Claim 67, wherein[:

- (a)] the DNA virus is a double stranded enveloped DNA virus selected from the group consisting of *Entomopoxvirinae* and *Eubaculovirinae*.

69. (Amended) A process as described in Claim 68, wherein[:

- (a)] the double stranded enveloped DNA virus is

Entomopoxvirinae.

70_(Amended) A process as described in Claim 69, wherein[:

(a)] the double stranded enveloped DNA virus

Entomopoxvirinae is an entomopox virus (EPV) selected from the group consisting of *Melolontha melolontha* EPV, *Amsacta moorei* EPB, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof.

71_(Amended) A process as described in Claim 68, wherein[:

(a)] the double stranded enveloped DNA virus is

Eubaculovirinae.

72_(Amended) A process as described in Claim 71, wherein[:

(a)] the double stranded enveloped DNA virus

Eubaculovirinae is selected from the group consisting of:

(1) a nuclear polyhedrosis virus (NPV) of *Lymantria dispar*

NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou* NPV, an *Autographa californica* NPV selected from the group consisting of V8vEGTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8,

AcMNPV Px1, and mixtures thereof; and

- (2) a granulosi virus (GV) of *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof.

73_(Amended) A process as described in Claim 67, wherein[:

- (a)] the DNA virus is a double stranded nonenveloped DNA virus.

74_(Amended) A process as described in Claim 67, wherein[:

- (a)] the DNA virus is a single stranded [noneveloped] nonenveloped DNA virus.

75_(Amended) A process as described in Claim 66, wherein[:

- (a)] the viral pathogen is a RNA virus selected from the group consisting of a double stranded enveloped RNA virus, a double stranded nonenveloped RNA virus, a single stranded RNA virus, and mixtures thereof.

76_(Amended) A process as described in Claim 75, wherein[:

- (a)] the RNA virus is a double stranded enveloped RNA virus selected from the group consisting of *Togaviridae*, *Bunyaviridae*, *Flaviviridae*, and mixtures thereof.

77_(Amended) A process as described in Claim 75, wherein[:

- (a)] the RNA virus is a double stranded nonenveloped RNA virus selected from the group consisting of *Reoviridae*, *Birnaviridae*, and mixtures thereof.

78_(Amended) A process as described in Claim 75, wherein[:

- (a)] the RNA virus is a single stranded nonenveloped RNA virus selected from the group consisting of *Picornaviridae*, *Tetraviridae*, *Nodaviridae*, and mixtures thereof.

79_(Amended) A process as described in Claim 65, wherein[:

- (a)] the insect biological control agent is a bacterial pathogen selected from the group consisting of *Bacillus thuringiensis*, *Bacillus lentimorbus*, *Bacillus cereus*, *Bacillus popilliae*, *Photorhabdus luminescens*, *Xenorhabdus nematophilus*, and mixtures thereof.

80_(Amended) A process as described in Claim 65, wherein the insect

biological control agent is a fungal pathogen selected from the group consisting of *Beauveria bassiana*, *Entomophthora* spp., *Metarrhizium anisopliae*, and mixtures thereof.

81_(Amended) A process as described in Claim 36, wherein[:]

- (a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer, a methyl methacrylate/methacrylic acid copolymer, a methacrylic acid/methyl acrylate/methyl/ methacrylate copolymer, and mixtures thereof;
- (b) the plasticizer is selected from the group consisting of a poly (ethylene glycol), a poly (propylene glycol),

a citric acid ester, diethyl phthalate, dibutyl phthalate, castor oil, triacetin, and mixtures thereof;

(c) the ultraviolet protector is selected from the group consisting of carbon black, a benzophenone, a dye, titanium dioxide, and mixtures thereof;

(d) the activity enhancer is a stilbene compound; and

(e) the glidant is selected from the group consisting of talc, magnesium stearate, calcium stearate, calcium sulfate, and mixtures thereof.

82 _(Amended) A process as described in Claim 36, wherein[:]

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of about 1:1, a methyl methacrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer having monomers in a ratio of from about 1:5:2 to about 3:7:3, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of triethyl citrate and a poly (ethylene glycol) having an average molecular weight of about 1,000 to 10,000;

and

- (c) the stilbene compound is selected from the group consisting of Blancophor BBH, Calcofluor White M2R, Phorwite AR, and mixtures thereof.

83. (Amended) A process as described in Claim 36, wherein[:

- (a)] the polymer is a methyl [methacrylate/methacrylic] methacrylate/methacrylic acid copolymer.

84. (Amended) A process as described in Claim 36, wherein[:

- (a)] the mixture is spray dried.

85. (Amended) A process as described in Claim 36, wherein[:

- (a)] the matrix has a particle size of less than about 20 μm .

86. (Amended) A process as described in Claim 58, wherein[:

- (a)] the matrix has a particle size of from about 2 μm to about 10 μm .

87. (Amended) A process as described in Claim 36, wherein[:]

- (a) the matrix comprised, on a percentage-weight-basis, from about 1% to about 50% of the pesticidal agent, from about 5% to about 50% of the polymer, from about 0% to about 25% of the plasticizer, from about 0% to about 30% of the ultraviolet protector, from about 0% to about 75% of the activity enhancer, and from about 0% to about 15% of the glidant.

88.__(Amended) A pesticidal matrix comprising[:]

- (a) on a percentage-weight-basis, from about 1% to about 50% of a pesticidal agent, from about 5% to about 50% of a pH-dependent polymer, from about 0% to about 25% of a plasticizer, from about 0% to about 30% of a ultraviolet protector, from about 0% to about 75% of a activity enhancer, and from about 0% to about 15% of a glidant; and
- (b) wherein the polymer [-](1) contains ester groups and free carboxylic acid groups, (2) is partially solubilized due to the action of the base, and (3) has a solubilization pH greater than about pH 5.5.

89.__(Amended) A pesticidal matrix as described in Claim 88, wherein[:]

- (a)] the matrix comprises, on a percentage-weight-basis, from about 5% to about 35% of the pesticidal agent, from about 10% to about 45% of the polymer, from about 0% to about 25% of the plasticizer, from about 0% to about 20% of the ultraviolet protector, from about 0% to about 45% of the activity enhancer, and from about 0% to about 10% of the glidant.

90.__(Amended) A pesticidal matrix as described in Claim 88, wherein[:]

- (a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer, a methyl

methacrylate/methacrylic acid copolymer, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of a poly (ethylene glycol), a poly (propylene glycol), a citric acid ester, diethyl phthalate, dibutyl phthalate, castor oil, triacetin, and mixtures thereof;

(c) the ultraviolet protector is selected from the group consisting of carbon black, a benzophenone, a dye, [titanim] titanium dioxide, and mixtures thereof;

(d) the activity enhancer is a stilbene compound; and

(e) the glidant is selected from the group consisting of talc, magnesium stearate, calcium stearate, calcium sulfate, and mixtures thereof.

91 A pesticidal matrix as described in Claim 90, wherein[:]

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a [ration] ratio of about 1:1, a methyl methacrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/methyl

methacrylate copolymer having monomers in a ratio of
from about 1:5:2 to about 3:7:3, and mixtures thereof;

(b) the plasticizer is selected from the group consisting
of triethyl citrate and a poly (ethylene glycol) having
an average molecular weight of about 1,000 to 10,000;
and

(c) the stilbene compound is selected from the group
consisting of Blancophor BBH, Calcofluor White M2R,
Phorwite AR, and mixtures thereof.

92_(Amended) A pesticidal matrix as described in Claim 88, wherein[:

(a)] the pesticidal agent is selected from the group
consisting of an insecticide, an acaricide, a
[nematicide] nematicide, a fungicide, a herbicide, and mixtures
thereof.

93_(Amended) A pesticidal matrix as described in Claim 92, wherein[:

(a)] the pesticidal agent is an insecticide selected from
the group consisting of a chemical insecticide, a
[biological] biological insecticide, and mixtures thereof.

94_(Amended) A pesticidal matrix as described in Claim 93, wherein[:

(a)] the insecticide is a chemical insecticide.

95_(Amended) A pesticidal matrix as described in Claim 93, wherein[:

(a)] the insecticide is a biological insecticide selected
from the group consisting of a viral pathogen, a

bacterial pathogen, a fungal pathogen, and mixtures thereof.

96_(Amended) A pesticidal matrix as described in Claim 95, wherein[:

(a)] the biological insecticide is selected from the group consisting of:

- (1) *Melolontha melolontha* EPV, *Amsacta moorei* EPB, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof;
- (2) *Lymantria dispar* NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou* NPV, an *Autographa californica* NPV selected from the group consisting of V8vEFTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8, AcMNPV Px1, and mixtures thereof;
- (3) *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof;
- (4) *Togaviridae*, *Bunyaviridae*, *Flaviviridae*, and mixtures thereof;
- (5) *Reoviridae*, *Birnaviridae*, and mixtures thereof;

- (6) *Picornaviridae*, *Tetraviridae*, *Nodaviridae*, and mixtures thereof;
- (7) *Bacillus thuringiensis*, *Bacillus lentimorbus*, *Bacillus cereus*, *Bacillus popilliae*, *Photorhabdus luminescens*, *Xeorhabdus nematophilus*, and mixtures thereof; and
- (8) *Beauveria bassiana*, *Entomophthora spp.*, *Metarrhizium anisopliae*, and mixtures thereof.

97_(Amended) A pesticidal matrix produced by a process as described in Claim 1.

98_(Amended) A process for improving the residual control of a pest comprising[:

- (a)] applying to the locus of the pest a pesticidally-effective amount of a pesticidal matrix as described in Claim 97.